

**REMARKS**

Claims 1-9 and 13-19 are pending in this application. Claims 10-12 have been canceled. Claims 1 and 7 have been amended. Claims 13-19 have been added. No new matter has been added by way of these amendments.

Support for claim 1 can be found in the specification, for example, at pages 2 and 4. Support for claim 7 can be found in the specification, for example, at page 13. Support for claim 13 can be found in the specification, for example, at pages 7-8. Support for claim 14 can be found in the specification, for example, at page 8. Support for claim 15 can be found in the specification, for example, at page 9. In lieu of the commercial names for Proxel and Bronopol, claim 15 includes the chemical name for Proxel and the chemical structure for Bronopol. Support for claim 16 can be found in the specification, for example, at page 4. Support for claim 17 can be found in the specification, for example, at page 4. Support for claim 18 can be found in the specification, for example, at page 5. Support for claim 19 can be found in the specification, for example, at pages 9-10. Support for claim 20 can be found in the specification, for example, at pages 3, 4, and 7.

Further, it is noted that many of the amendments made herein are not made for patentability purposes (e.g., to avoid the prior art) which might otherwise raise estoppel issues under the recent holding

of *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 56 USPQ2d 1865 (Fed. Cir. 2000). For example, the amendments made herein with regard to claims 1 and 7, while responding to an outstanding rejection under 35 U.S.C. § 112, second paragraph, simply serve to clarify the inventive discovery that the Applicants regard as their own, without narrowing the scope of the same claim.

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, the applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

***Issues Under 35 U.S.C. § 112, First Paragraph***

The Examiner has rejected claims 1-12 under 35 U.S.C. § 112, first paragraph, because the specification allegedly does not enable all derivatives as claimed.

The applicants have amended claim 1 so that "derivatives" are no longer claimed. Rather, surfactant (A) is claimed as having a sugar structure or a sugar alcohol structure, as disclosed in the specification. Therefore, this rejection is overcome.

**Issues Under 35 U.S.C. §§ 101 and 112, Second Paragraph**

The Examiner has rejected claims 1-12 under 35 U.S.C. § 112, second paragraph, because the term "derivative" is allegedly a relative term and renders the claim indefinite.

As mentioned above, the applicants have amended claim 1 so that surfactant (A) is a sugar structure or a sugar alcohol structure, and not a "derivative." Thus, applicants respectfully request the Examiner to reconsider and withdraw this rejection.

The Examiner has rejected claim 7 under 35 U.S.C. §§ 101 and 112, second paragraph, because the claim is directed to a method of use without reciting any steps. The applicants have amended claim 7 to incorporate positive steps. Thus, the applicants respectfully request the Examiner to withdraw this rejection.

**Issues Under 35 U.S.C. § 103(a)**

The Examiner has rejected Claims 1-3 and 6-12 as being unpatentable over Minoru et al., JP 06336401 A (hereinafter referred to as Minoru '401), and Masahiko et al., JP 06227904 A (hereinafter referred to as Masahiko '904), or Carstairs et al., WO 94/24857 (hereinafter referred to as Carstairs '857), in combination.

The Examiner states that Minoru '401 fails to teach the method/composition comprising a polysaccharide and/or gibberelin. The Examiner also states that Masahiko '904 discloses a

composition/method comprising trehalose (disaccharide), and Carstairs '857 discloses a composition/method comprising gibberellin.

The applicants respectfully traverse the above rejection.

#### The Present Invention and Its Advantages

There are many conventional methods that prolong the life of a plant, such as those as those described in the specification (for example, see page 1). These conventional methods include cutting the flower and placing it in fresh water, adding a preservative or a germicide, or adding nutrients to the water. These methods do have drawbacks, also described in the specification (pages 1-2), including compromises of environmental safety.

In contrast, the present invention provides a novel freshness-keeping agent (and method using this agent) for various plants (i.e., flowers, vegetables). Specifically, the present invention provides a freshness-keeping composition for plants comprising a surfactant (A), and at least one of the following components (B)-(F): a sugar (B), a plant hormone (C), an aging inhibitor (D), an aggregating agent for colloidal particles (E), or a germicide, fungicide and preservative (F). Component (A) has surfactant activity with a sugar or sugar alcohol skeleton in a molecule. The surfactant has a hydrophobic group, where the hydrophobic group is based, for example, on the alkyl attached to the sugar structure through an ester, glycoside or

amide group. The surfactant may have a structure with a hydrophilic group, where the type of hydrophilic group depends on the sugar structure or the sugar alcohol structure.

The Applicants have found that there are synergistic advantages in employing component (A) with at least one of components of (B)-(F). As a result of the above combinations, the claimed composition creates an improved freshness-keeping effect and safety. Further, the freshness-keeping agent can be added to another freshness-keeping agent or life-prolonging agent that are commercially available and conventionally used.

However, the prior art fails to disclose the claimed combinations of surfactant (A) and at least one of the components of (B)-(F) according to the present invention and the present claims. This will be discussed in more detail below.

Distinctions Between the Present Invention and the Combination of Minoru '401 and Masahiko '904 or Minoru '401 and Carstairs '857

*(A) Lack of Motivation and Teachings in the Cited Art*

As discussed above, the present invention is directed to a composition and method of using a novel freshness-keeping composition of a surfactant (A) and at least one of components (B)-(F). However, the references of Minoru '401 and Masahiko '904, or Minoru '401 and

Carstairs '857, fail in combination to disclose or suggest a composition of surfactant (A) with at least one of the components (B)-(F). Applicants respectfully submit that these references are improperly combined for the following reasons.

The U.S.P.T.O.'s asserted combination of the Minoru '401, Masahiko '904 and Carstairs '857 references do not result in the claimed invention, and/or provide no motivation to arrive at the inventive composition and methods claimed. For example, Masahiko '904 simply discloses a composition or method comprising trehalose (corresponding to (B)). Carstairs '857 simply discloses a composition and method comprising gibberellin (corresponding to (C)), and similarly, Minoru '401 simply discloses alkylglucoside (corresponding to (A)). Applicants also discuss Masahiko '904 as disclosing a single component in the present specification (see page 2).

Accordingly, the cited references at best simply disclose "sole" components of the instantly claimed combinations, and provide no motivation to arrive at a combination composition as instantly claimed. Applicants have discussed some of these references as lacking the claimed combinations. For example, in the specification, Applicants have discussed Minoru '401 as disclosing a perfume glycoside enhancing an aroma of a cut flower (see present specification, page 2). The Examiner states that Minoru '401 teaches a composition comprising an alkyl glycoside, but at the same time,

this reference fails to teach the method/composition comprising a polysaccharide and/or gibberelin. At best, each of the cited reference discloses a single component, and the references have been improperly combined.

*(B) Achievement of Unexpected Results*

Applicants also respectfully submit that the cited references are incapable of rendering the claimed invention obvious because the claimed compositions and methods are associated with the achievement of unexpectedly improved properties, when compared with prior art compositions and methods. Specifically, the present invention of combining component (A) with at least one of (B)-(F) gives synergistic advantages.

To support the position of unexpected results, Applicants have conducted comparative testing. As depicted in the comparative data in the present specification (see Tables 1 and 9 comparing inventive products 13, 49, 53, 54, 56, versus comparative products 10 and 30 of trehalose and gibberellin, respectively), Applicants have found that the claimed combinations possess unexpectedly improved properties over anything disclosed by the Minoru '401, Masahiko '904 and Carstairs '857 references. For example, the combination of the components (A) and at least one of (B)-(F) gives synergistic advantages of better growth and freshness conditions of various

plants (see the experimental results in Tables 2 and 4). This data was even conducted with various plants, such as chrysanthemums, carnations, roses, Chinese cabbage and spinach (see pages 16 and 20), with consistent results. In summary, the experimental data indicates that the presently claimed invention was not disclosed by any combination of references, such as a combination of Minoru '401 and Carstairs '857, or Masahiko '904 and Carstairs '857. Thus, Applicants submit that this rejection is overcome because evidence of unexpected results is in the present specification. See *In re Soni*, 54 F.3d 746, 34 U.S.P.Q.2d 1684 (Fed. Cir. 1995) (error not to consider evidence in the specification); MPEP § 2144.08.

As mentioned, a comparison of the test data showing that claimed composition possesses unexpectedly improved properties, such as better growth and freshness conditions, is not reflected in the Minoru '401, Masahiko '904 and Carstairs '857 references. Based on this lack of disclosure and teachings in the cited art, Applicants submit that it is not possible to combine the above-mentioned references as a basis for rejecting the claimed invention under 35 U.S.C. § 103(a). U.S. case law squarely holds that a proper obviousness inquiry requires consideration of whether or not the prior art would have taught, motivated, or suggested to those of ordinary skill in the art that they should make the claimed invention (or practice the invention in case of a claimed method or process).



See, e.g., *In re Vaeck*, 947 F.2d, 488, 493 (Fed. Cir. 1991); *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1316-17 (Fed. Cir. 2000). In other words, the prior art references themselves must state the motivation or suggestion to combine the references.

There is no motivation in the cited references that could come about in combining these references, nor even any teaching that these unexpectedly improved properties would result. Thus, Minoru '401, Masahiko '904 and Carstairs '857 have been improperly combined. Any combination of these references only becomes obvious upon reading the applicants' specification, and the improper application of hindsight.

In view of the above remarks, Applicants respectfully submit that the present claims encompass subject matter that is patentably distinguishable from the cited references. Specifically, the present claims are patentable over the combination of Minoru '401 and Masahiko '904, or the combination of Minoru '401 and Carstairs '857. Accordingly, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By 

John W. Bailey  
Reg. No. 32,881

  
JWB/ETP  
0425-0821P

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000

Attachment: Version with Markings to Show Changes Made

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

Please amend the paragraph beginning on page 16, line 17, as follows:

The freshness-keeping agents of Inventive products 1 to 22 and Comparative products 1 to 11 were used and examined in a freshness keeping test on commercial cut flowers [chrysanthemum (form: Benioug), carnation (form: Juliet) and rose (form: Valerie)]. As the cut flowers, those having most similar growth conditions and freshness conditions with the possibility were selected and their stems were cut with sharp scissors in water to use themselves. The cut flowers were placed in 200 ml of the freshness-keeping agent and cultivated under the conditions of a temperature of 23 °C, a humidity of 60 % and an irradiation of 5000 lux. The keeping of freshness was evaluated [visuall] visually. The number of days having elapsed until the cut flowers became unappreciable due to withering of flower petals, generation of bent necks, weathering of stems and leaves, etc., was regarded as the number of days for the flowers being preserved. The results are shown in Table 2. As compared with Comparative products, Inventive products were confirmed to have the effect for the flowers being preserved in all test systems, and the freshness-keeping effect of the sugar derivative- or sugar alcohol derivative- based surfactant (A) was thus recognized.

**IN THE CLAIMS:**

Claims 10-12 have been canceled.

The claims have been amended as follows:

1. (Amended) A plant freshness-keeping composition comprising at least one surfactant (A), wherein said [selected from a sugar

derivative-based surfactant and sugar alcohol derivative-based] surfactant has a sugar structure or a sugar alcohol structure, and at least one selected from the group consisting of a sugar (B), a plant hormone (C), an aging inhibitor (D), an aggregating agent for colloidal particles (E) and a germicide, fungicide and preservative (F).

7. (Amended) [Use of] A method of using the composition as defined in Claim 1 for preserving a plant with keeping the freshness thereof [by application onto the plant], comprising the steps of:

- a) obtaining a sample comprising said composition, where said composition is in the form of aqueous solution or powder; and
- b) applying said sample onto the plant.

Claims 13-20 have been added.